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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/829,781 | 04/10/2001 | Tsung-Yuan Hsu | B-3916 617818-6 | 1039 |

36716 7590 05/22/2006

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EXAMINER

NGUYEN, DUNG T

ART UNIT PAPER NUMBER

2828

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|--------------------------------------|----------------------------|--|
| Office Action Summary | Application No. 09/829,781 | Applicant(s) HSU ET AL. | |
| | Examiner Dung (Michael) T. Nguyen | Art Unit 2828 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 19-34 is/are allowed.
- 6) ☒ Claim(s) 11-14 is/are rejected.
- 7) ☒ Claim(s) 15-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mossberg et al. (6034976) in view of Brenner et al. (6233080).

With respect to claim 11, Mossberg et al. show in Fig.1 and column 2, lines 49-57) a method of enhancing the modulation bandwidth of a laser, the laser having a operating frequency and having an output and an input, the method comprising the steps of:

- (a) tapping the output from the laser to thereby define a tapped optical signal;
- (b) shifting the frequency of the tapped optical signal to thereby define a shifted optical signal;
- (c) feeding the shifted optical signal back into the input of the laser.

However, Mossberg et al. lack the laser is a distributed feedback (DFB) laser.

Brenner et al. teach in Fig.2 a DFB laser (20).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Mossberg et al. what is taught by Brenner et al. because by using a DFB laser, it would have low wavelength chirp as compared with laser diodes being directly modulated (col.1, lines 57-59).

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With respect to claim 13, Mossberg et al. disclose the modulator is used to shift the frequency of the tapped optical signal (col.2, lines 54-56).

With respect to claim 14, Mossberg et al. disclose all limitations of the claims except for the Mach-Zehnder modulator.

Brenner et al. teach the Mach-Zehnder modulator (col.1, line 60).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Mossberg et al. what is taught by Brenner et al. in order to induce a phase shift (col.2, line 3).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mossberg et al. (6034976) in view of Brenner et al. (6233080) and further in view of Ih (4768852).

Mossberg et al. and Brenner et al. disclose all limitations of the claims except for the Surface Acoustic Wave (SAW).

Ih teaches a SAW (col.1, line 36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Mossberg et al. and Brenner et al. what is taught by Ih to employ an alternative modulator (col.1, line 36).

Allowable Subject Matter

Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-10 and 19-34 are allowed.

Claims 1, 19, 23, and 30 are allowed over the Mossberg et al., Brenner et al., and Ih prior art because they fail to teach, taken singly or combined, the limitations of a modulator for generating two sidebands and a filter coupled to an output of the modulator for suppressing or passing on of the two sidebands, and an optical path coupling an output of the filter to the laser for injection locking.

Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

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Michael Dung Nguyen



JAMES
MENEFEE